

**From:** LUT Agnes <LUT.Agnes@deq.state.or.us>  
**Sent time:** 05/23/2012 03:58:41 PM  
**To:** Soscia.Marylou@epamail.epa.gov  
**Cc:** Cope.Ben@epamail.epa.gov  
**Subject:** RE: CRT water temperature HEC-RAS proposal  
**Attachments:** image002.png

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Mary Lou

In addition, I asked ACOE directly if they have used, calibrated and validated the temperature component of HEC-RAS for the Columbia River reach we are interested in. ACOE answered NO to each of those questions, which makes me very nervous to pursue the use of the HEC -RAS model.

See attached email from Bill Abadie.

a-

**From:** Marylou Soscia [<mailto:Soscia.Marylou@epamail.epa.gov>]  
**Sent:** Monday, May 21, 2012 11:16 AM  
**To:** LUT Agnes  
**Subject:** Fw: CRT water temperature HEC-RAS proposal

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**Mary Lou Soscia | Columbia River Coordinator | US EPA**  
805 S.W. Broadway, Suite 500 | Portland, OR 97205  
503.326.5873  
[www.epa.gov/region10/columbia](http://www.epa.gov/region10/columbia) | <http://twitter.com/EPAcolumbia>

----- Forwarded by Marylou Soscia/R10/USEPA/US on 05/21/2012 11:15 AM -----

From: Ben Cope/R10/USEPA/US  
To: Gregory J Fuhrer <[gjfuhrer@usgs.gov](mailto:gjfuhrrer@usgs.gov)>  
Cc: Marylou Soscia/R10/USEPA/US@EPA  
Date: 05/21/2012 11:14 AM  
Subject: Re: Fw: CRT water temperature HEC-RAS proposal

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Marylou, sorry, I should have cc'd you with my comments (markup) to USACE on the HEC-RAS proposal (below/attached). I think USACE may be able to make a case for building a HEC-RAS temperature model instead of using RBM10 since both models probably use a similar heat budget method, but I don't think the proposal document makes that case. So I'm on the fence pending more info about project needs (e.g., long term simulation?) and expected HEC-RAS development effort and run time. I'm interested in the USGS take on it, since they've applied RBM10 and found it reasonable and useful for Klamath future temperature scenarios.

Bill -

*Please see attached for comments on this document. I've noted some areas where additional HEC-RAS info would be good to know. The section comparing HEC-RAS and RBM10 is weakened by several erroneous and misleading statements.*

Thanks.

-BC

(See attached file: HEC-RAS Proposal for CRT EPA Comments (Cope).docx)

Ben Cope, Environmental Engineer  
Office of Environmental Assessment  
EPA Region 10  
Seattle, Washington  
206-553-1442

▼ Gregory J Fuhrer ---05/21/2012 10:55:11 AM---Mary Lou, There will be a Temperature Work Group meeting on May 30 to discuss this

From: Gregory J Fuhrer <[gjfuhrer@usgs.gov](mailto:gjfuhrrer@usgs.gov)>  
To: Marylou Soscia/R10/USEPA/US@EPA,  
Cc: Ben Cope/R10/USEPA/US@EPA  
Date: 05/21/2012 10:55 AM  
Subject: Re: Fw: CRT water temperature HEC-RAS proposal

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Mary Lou,

There will be a Temperature Work Group meeting on May 30 to discuss this topic. As of now, there has been no resolution.

Greg

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Gregory J. Fuhrer, Associate Director  
Oregon Water Science Center  
U.S. Geological Survey  
2130 SW 5th Avenue  
Portland, OR 97201  
503.251.3231  
503.956.2542 (cell)  
503.251.3470 (FAX)

From: Marylou Soscia <[Soscia.Marylou@epamail.epa.gov](mailto:Soscia.Marylou@epamail.epa.gov)>  
To: [gjfuhrer@usgs.gov](mailto:gjfuh@usgs.gov)  
Cc: Ben Cope <[Cope.Ben@epamail.epa.gov](mailto:Cope.Ben@epamail.epa.gov)>  
Date: 05/21/2012 10:40 AM  
Subject: Fw: CRT water temperature HEC-RAS proposal

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Greg; any resolution on the model wars? ml

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**Mary Lou Soscia | Columbia River Coordinator | US EPA**  
805 S.W. Broadway, Suite 500 | Portland, OR 97205  
503.326.5873  
[www.epa.gov/region10/columbia](http://www.epa.gov/region10/columbia) | <http://twitter.com/EPAcolumbia>

----- Forwarded by Marylou Soscia/R10/USEPA/US on 05/21/2012 10:39 AM -----

From: LUT Agnes <[LUT.Agnes@deg.state.or.us](mailto:LUT.Agnes@deg.state.or.us)>  
To: Marylou Soscia/R10/USEPA/US@EPA  
Date: 05/16/2012 04:11 PM  
Subject: FW: FW: CRT water temperature HEC-RAS proposal

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Thought you'd find this email informative....

**From:** Hatch, Keith [<mailto:Keith.Hatch@bia.gov>]  
**Sent:** Wednesday, May 16, 2012 4:05 PM  
**To:** LUT Agnes  
**Cc:** Aikin, Scott; Redhorse, David  
**Subject:** RE: FW: CRT water temperature HEC-RAS proposal

Agnes,

Let's see, 5 minutes to run the EPA's peer reviewed, validated and documented RBM-10 model, or \$91,300, 748 billable hours, and ~12 months for the COE to contract out to get HEC-RAS results per this table in the Corps proposal (attached).

Task	Cost	Duration	Estimated Completion Date
Task 1	\$6,600	64 hours	July 2012
Task 2	\$12,500	120 hours	August 2012
Task 3	\$28,900	280 hours	August 2012-March 2013
Task 4	\$9,900	96 hours	June 2012 - April 2013
Task 5	\$19,400	188 hours	April 2013
Administrative	\$14,000	N/A	
<b>Total</b>	<b>\$91,300</b>	<b>748 hours</b>	

Why does this is reminding me of an certain DOD toilet seat?

Keith

**From:** LUT Agnes [<mailto:LUT.Agnes@deg.state.or.us>]  
**Sent:** Wednesday, May 16, 2012 1:23 PM  
**To:** 'Marylou Soscia'; Hatch, Keith  
**Cc:** Ben Cope; [rueda.helen@epa.gov](mailto:rueda.helen@epa.gov)  
**Subject:** RE: FW: CRT water temperature HEC-RAS proposal

Keith

Food for thought as you review the HEC-RAS proposal.

Initially HAC -RAS was developed as a hydro-dynamic model by ACOE with no temperature capability. The model was used to answer questions regarding the width and depth (geometry) and velocity of the system such as "how deep is the river", "is there shoaling going on".

Temperature has been added as a model component recently, but I'm not sure when. Additionally, it is unclear if the temperature component has been run, validated and documented for the mainstem Columbia River (Chief Jo to Bonneville - the reach we are specifically looking at).

As you are evaluating ACOE's proposal, please keep in mind the need to show the models temperature component use, validation and documentation for the mainstem Columbia. Additionally, what is the model's run-time for the 70-year period of record the Treaty is evaluating?

RBM-10 has been run, validated and documented for the mainstem Columbia River, as Mary Lou mentioned in her email for temperature TMDL development which is currently on-hold. It takes RBM-10 about 5 minutes to run the daily average temperature for the 70 year period.

Food for thought...

Agnes-

**From:** Marylou Soscia [<mailto:Soscia.Marylou@epamail.epa.gov>]  
**Sent:** Tuesday, May 15, 2012 3:00 PM  
**To:** Hatch, Keith  
**Cc:** Ben Cope; LUT Agnes; [rueda.helen@epa.gov](mailto:rueda.helen@epa.gov)  
**Subject:** Re: FW: CRT water temperature HEC-RAS proposal  
**Importance:** High

Keith:

Ben Cope is our technical expert on modeling. I am not.

I defer to Ben for an assessment of this modeling tool. I understand that this is not a water quality model and has limitations in assessing water temperature and hence there is concern about the use of this model. I am copying some other people that are way smarter than me so they can weigh in on this.

RBM-10 was developed by EPA to assess water temperature in the Columbia River Basin and has been peer-reviewed by engineering and modeling experts. However, the Corps has an "allergy" to EPA water temperature models and is unwilling to use this EPA tool hence the proposal for a hydrologic model that will be used to assess water temperature.

Mary Lou

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**Mary Lou Soscia | Columbia River Coordinator | US EPA**  
805 S.W. Broadway, Suite 500 | Portland, OR 97205  
503.326.5873  
[www.epa.gov/region10/columbia](http://www.epa.gov/region10/columbia) | <http://twitter.com/EPAcolumbia>

[IMAGE]"Hatch, Keith" ---05/15/2012 02:34:40 PM---Marylou, You have an understanding and expertise of temperature modeling in the Columbia River.

From: "Hatch, Keith" <[Keith.Hatch@bia.gov](mailto:Keith.Hatch@bia.gov)>  
To: Marylou Soscia/R10/USEPA/US@EPA  
Date: 05/15/2012 02:34 PM  
Subject: FW: CRT water temperature HEC-RAS proposal

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Marylou,

You have an understanding and expertise of temperature modeling in the Columbia River.  
This look like a good approach to you?

Keith

-----Original Message-----

From: Abadie, William D NWP [<mailto:William.D.Abadie@usace.army.mil>]

Sent: Tuesday, May 15, 2012 1:11 PM

To: [lauren@integratedwatersolutions.net](mailto:lauren@integratedwatersolutions.net); Marotz, Brian; Kruger, Rick; Agnes Lut; Aja Decoteau; Etheridge, Alexandra B.; Paulson, Anthony J.; Antonio Baptista; Apfelbeck, Randy; Beau Patterson; Ben Cope; Birgit Koehler; Bob Bukantis; Brian Crossley; Adkins, Candice B.; Catherine Corbett; Chad Brown; Chad Brown; Lay, Clyde H.; David Jay; Dianne barton; Don Essig; Duffe, Bruce J NWP; Elena Nilsen; Gary Passmore; Fuhrer, Gregory J.; Gelfenbaum, Guy R.; Hays, Steve; Jen Boyer; Jim Heffernan; John Barco; Johnson, Kimberly O NWD; Major, Jon J.; Josh Grice; [Kconn@usgs.gov](mailto:kconn@usgs.gov); Hatch, Keith; Keith Truscott; Easthouse, Kent B NWS; Lauren Casey; Postlethwait, Lori; Lyndal Johnson; Michelle Smith; Schneider, Michael L NWP; Wood, Molly S.; BPA Stephan, Nancy; Paul Wagner; Proctor, William D NWD; Rea, Matt T NWP; Ross Hendrick; English, Scott E NWD; Shane Bickford; Parkinson, Sharon E; Cox, Stephen E.; Juul, Steve T NWW; Rounds, Stewart A.; Terry Buchholz; Tom Dresser; Tyler Llewellyn; Waikele Hampton; Risley, John C.; Lundell, Tina M NWP; Briner, Wendy K NWP; Crain, James D NWP; Schneider, Michael L NWP; heib\_critf.org; Buchholz, Robert J NWP  
Subject: CRT water temperature HEC-RAS proposal

Good afternoon,

Attached is the proposal to use HEC-RAS for water temperature modeling. This would be instead of RBM-10. Please submit your comments along with your recommendation of using RBM-10 or HEC-RAS by COB May 25th. This will be one of the main agenda items at our May 30th water quality work group meeting.

If you need a copy of the RBM-10 proposal, please let us know.

Thank you,

Bill

Bill Abadie  
Project Manager  
U.S. Army Corps of Engineers - Portland District  
333 SW 1st Avenue  
PO Box 2946  
Portland, OR 97208-2946  
503-808-4732 (phone)  
503-808-4736 (fax)  
[William.D.Abadie@usace.army.mil](mailto:William.D.Abadie@usace.army.mil)

[attachment "HEC-RAS Proposal for CRT.docx" deleted by Marylou Soscia/R10/USEPA/US] (See attached file: HEC-RAS Proposal for CRT.DOCX)  
[attachment "HEC-RAS Proposal for CRT.DOCX" deleted by Gregory J Fuhrer/WRD/USGS/DOI] (See attached file: image002.png)  
Received: from deqx5.deq.state.or.us (159.121.9.230) by DEQEXCH1.deq.state.or.us (10.7.3.2) with Microsoft SMTP Server id 14.2.298.4; Fri, 18 May 2012 07:27:38 -0700  
Received: from gw3.usace.army.mil ([140.194.153.3]) by deqx5.deq.state.or.us with ESMTTP; 18 May 2012 14:27:37 +0000  
Received: from eis-ht02wpc.eis.ds.usace.army.mil (HELO usace.army.mil) ([140.194.150.242]) by gw3.usace.army.mil with ESMTTP; 18 May 2012 14:27:36 +0000  
Received: from EIS-MB02WPC.eis.ds.usace.army.mil ([fe80::9c04:f047:b54:4e6d]) by EIS-HT02WPC.eis.ds.usace.army.mil ([2002:8cc2:96f2::8cc2:96f2]) with mapi id 14.01.0355.002; Fri, 18 May 2012 07:27:37 -0700  
From: "Abadie, William D NWP" <William.D.Abadie@usace.army.mil>  
To: LUT Agnes <LUT.Agnes@deg.state.or.us>  
CC: "Crain, James D NWP" <James.D.Crain@usace.army.mil>  
Subject: FW: CRT water temperature HEC-RAS proposal  
Date: Fri, 18 May 2012 14:27:36 +0000  
Message-ID: <B87F68DE5946B146942729774F7C8217091676FD@EIS-MB02WPC.eis.ds.usace.army.mil>  
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Content-Language: en-US  
Content-ID: <E5036277FD9E814B89E2D1ED530363CF@deg.state.or.us>  
Thread-Topic: CRT water temperature HEC-RAS proposal  
Thread-Index: AQHNOTeOzZ47u+8U/kat8OdcY+jHKw==  
Accept-Language: en-US  
X-MS-Exchange-Organization-AuthAs: Anonymous  
X-MS-Exchange-Organization-AuthSource: DEQEXCH1.deq.state.or.us  
X-MS-Has-Attach:  
X-MS-Exchange-Organization-SCL: 0  
X-MS-TNEF-Correlator:  
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x-ironport-av: E=Sophos;i="4.75,617,1330905600"; d="scan'208";a="198273036"  
x-ironport-anti-spam-filtered: true  
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MIME-Version: 1.0

Agnes,

The first public release of the HEC-RAS water quality/temperature module was March 2008, with a beta version being released back in November 2006.

No, the temperature module of HEC-RAS for the Columbia has not been set up and validated. That is what we will be doing. Now the flows and bathymetry are, but not the meteorological data.

The web site for RAS is <http://www.hec.usace.army.mil/software/hec-ras/> and <http://www.hec.usace.army.mil/>

Hope this helps. Also, feel free to discuss the technical aspects of RAS with Jim Crain in our office (503-808-4838). He is one of our modelers.

Bill

-----Original Message-----

From: Crain, James D NWP  
Sent: Thursday, May 17, 2012 12:59 PM  
To: Abadie, William D NWP  
Subject: RE: CRT water temperature HEC-RAS proposal

1) first public release March 2008 in beta version since November 2006  
2) No  
3) all RAS documentation is here: <http://www.hec.usace.army.mil/>  
-----Original Message-----  
From: Abadie, William D NWP  
Sent: Wednesday, May 16, 2012 1:50 PM  
To: Crain, James D NWP  
Cc: English, Scott E NWD  
Subject: FW: CRT water temperature HEC-RAS proposal

Jim,

Can you answer these questions for Agnes at DEQ?

Thanks, Bill

-----Original Message-----  
From: LUT Agnes [<mailto:LUT.Agnes@deq.state.or.us>]  
Sent: Wednesday, May 16, 2012 1:40 PM  
To: Abadie, William D NWP; lauren@integratedwatersolutions.net; Marotz, Brian; Kruger, Rick; Aja Decoteau; Alexandra Etheridge; Anthony Paulson; Antonio Baptista; Apfelbeck, Randy; Beau Patterson; Ben Cope; Birgit Koehler; Bob Bukantis; Brian Crossley; Candice Adkins; Catherine Corbett; Chad Brown; Chad Brown; Clyde Lay; David Jay; Dianne barton; Don Essig; Duffe, Bruce J NWP; Elena Nilsen; Gary Passmore; Greg Fuhrer; Guy Gelfenbaum; Hays, Steve; Jen Boyer; Jim Heffernan; John Barco; Johnson, Kimberly O NWD; Jon Major; Josh Grice; Kconn@usgs.gov; Keith Hatch; Keith Truscott; Easthouse, Kent B NWS; Lauren Casey; Lori Postlethwait; Lyndal Johnson; Michelle Smith; Schneider, Michael L NWP; Molly Wood; BPA Stephan, Nancy; Paul Wagner; Proctor, William D NWD; Rea, Matt T NWP; Ross Hendrick; English, Scott E NWD; Shane Bickford; Sharon Parkinson; Steve Cox; Juul, Steve T NWW; Stewart Rounds; Terry Buchholz; Tom Dresser; Tyler Llewellyn; Waikele Hampton; John Risley; Lundell, Tina M NWP; Briner, Wendy K NWP; Crain, James D NWP; Schneider, Michael L NWP; heib\_critf.org; Buchholz, Robert J NWP  
Subject: RE: CRT water temperature HEC-RAS proposal

Bill,  
Quick questions before I launch into the reading of the proposal....

1. When was the temperature component added to HEC-RAS? I looked at ACOE's HEC-RAS sight and noticed it was added recently but couldn't find a date. Could be 10 years ago, but I'm not sure... thanks.
2. Has HEC-RAS temperature component been run, validated and documented specifically for temperature modeling purposes in the mainstem Columbia (Chief Jo to Bonneville, the reach we are interested in)? Are the links to documentation provided in the proposal?

Thanks, Bill...

Agnes Lut  
503-229-5247

Watershed Managment  
Water Quality Division  
Oregon Department of Environmental Quality

lut.agnes@deq.state.or.us

-----Original Message-----  
From: Abadie, William D NWP [<mailto:William.D.Abadie@usace.army.mil>]  
Sent: Tuesday, May 15, 2012 1:11 PM  
To: lauren@integratedwatersolutions.net; Marotz, Brian; KRUGER Rick; LUT Agnes; Aja Decoteau; Alexandra Etheridge; Anthony Paulson; Antonio Baptista; Apfelbeck, Randy; Beau Patterson; Ben Cope; Birgit Koehler; Bob Bukantis; Brian Crossley; Candice Adkins; Catherine Corbett; Chad Brown; Chad Brown; Clyde Lay; David Jay; Dianne barton; Don Essig; Duffe, Bruce J NWP; Elena Nilsen; Gary Passmore; Greg Fuhrer; Guy Gelfenbaum; Hays, Steve; Jen Boyer; Jim Heffernan; John Barco; Johnson, Kimberly O NWD; Jon Major; Josh Grice; Kconn@usgs.gov; Keith Hatch; Keith Truscott; Easthouse, Kent B NWS; Lauren Casey; Lori Postlethwait; Lyndal Johnson; Michelle Smith; Schneider, Michael L NWP; Molly Wood; BPA Stephan, Nancy; Paul Wagner; Proctor, William D NWD; Rea, Matt T NWP; Ross Hendrick; English, Scott E NWD; Shane Bickford; Sharon Parkinson; Steve Cox; Juul, Steve T NWW; Stewart Rounds; Terry Buchholz; Tom Dresser; Tyler Llewellyn; Waikele Hampton; John Risley; Lundell, Tina M NWP; Briner, Wendy K NWP; Crain, James D NWP; Schneider, Michael L NWP; heib\_critf.org; Buchholz, Robert J NWP  
Subject: CRT water temperature HEC-RAS proposal

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If you need a copy of the RBM-10 proposal, please let us know.

Thank you,

Bill

Bill Abadie  
Project Manager  
U.S. Army Corps of Engineers - Portland District  
333 SW 1st Avenue  
PO Box 2946  
Portland, OR 97208-2946  
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